4. Each eye possesses its independent reflex-arc, which runs through the optic nerve, the corresponding half of the central gray substance, the nucleus and trunk of the oculomotorius on the same side.

5. Between the reflex-arcs of the two sides there is a connection, which transfers reflexes from one eye to the pupil of the other. This connection is probably through commissural fibres between the nuclei of the oculomotors.

6. The centres of the pupil-narrowing reflexes do not lie, as Hensen and Völkers think, at the bottom of the third ventricle, nor, as Adamük says, behind the corpora quadrigemina, but in all probability are localized in the nuclei of the oculomotors.

7. At the bottom of the third ventricle are no centres for the movement of the ocular muscles in the sense held by Hensen and Völkers.

8. The changes in the position of the eyes, together with the general motor disturbances by irritation or destruction in the neighborhood of the third ventricle, are in their character like those seen in the eye after destruction of the semicircular canals or the olivary bodies of the medulla, and show that the above-named region, as well as the semicircular canals and olivary bodies, have an influence over the whole motor sphere of the animal.

9. The centres for the voluntary movement of the ocular globe must be located in the nuclei of the nerves innervating the ocular muscles.

10. The localization of an accommodation-centre in the region of the bottom of the third ventricle cannot be held as substantiated from the foregoing observations.

11. The dilating action of painful irritation upon the pupil is conveyed not through the sympathetic fibres, but can result independently through inhibition of the light-reflex.

12. The so-called motionless pupil is probably due to pathological processes which break the path of the light-reflexes in their course from the chiasm of the optic nerves to the nuclei of the oculomotors.—*Pflüger's Arch.*, 1883, Band xxxi., Heft 1 and 2.

RESPIRATORY INNERVATION.—Prof. Knoll has made experiments upon this subject, using rabbits. The vagus is irritated by its own current. If the vagi are previously divided, and they are lifted from the wound in the neck, a marked change occurs in the respiratory movements producing an expiration. A similar expiratory arrest can be produced by allowing the elevated vagi to settle down in the wound. If a mica plate is put under the vagus and a 0.6-per-cent. salt solution is applied to the nerve, the expiration also takes place; also, if the nerve is lifted out of the salt solution. The application of the metal electrodes to the nerve, although no current is passing, also causes it. These effects are produced by variations in the current of the vagus itself. When similar procedures are enacted with the peripheral stump of the vagus, then no result ensues as regards the heart.—*Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften*, 1882, Band lxxxv.

RESPIRATION WHEN THE VAGI ARE ARTIFICIALLY IRRITATED. —Dr. Knoll has made several experiments upon this subject, using rabbits, mostly slightly narcotized. With induction currents on the central end of the vagus, there was, in accordance with Wedenskii, an expiration, whilst by increase of the strength of the current the well-known inspiration ensued. Although by long irritation of the vagus there must ensue by the arrest of the respiration a certain degree of dyspnœa, yet during the irritation no contraction of previously inactive respiratory muscles was observed.

The muscles assisting respiration, which previously were in activity, are relaxed by vagus irritation. The anæmia of the brain existing during the inspiratory arrest caused by the vagus-irritation calls out no respiratory movement.

During the inspiratory stand-still the respiration-reflexes from other nerves are either weakened or not retained at all. A part of the apparent irregularities in the action of the induction-current upon the vagus end depends upon the relation which the direction of the opening breaks stands to the distance of the irritation from the place of nerve-section. In the neighborhood of the section, weak ascending opening breaks are more active than similar strong descending ones. But two to three centimetres from the section we find, on the other hand, that weak irritations by the descending opening current in general are more active than the ascending ones. Hence in many cases there are obtained, by one and the same current strength, from the same part of the nerve, by changes of the direction of the current, sometimes expiratory and sometimes inspiratory results, or by gradually moving the electrodes from the place of section toward the cerebral end of the nerve. Sometimes the expiratory results are turned into inspiratory ones. By the use of different mechanical manipulations irritating the central end of the nerve, the conclusion was reached that the inspiratory action is the regular primary result of the action of mechanical irritations. Chemical irritants, which serve as side-conductors for the current of the nerve itself, call out complicated results. Temperature changes in the limits from + 2° to 60° C. have no action upon the central end of the vagus. Freezing the central end of the vagus caused no irritation.—*Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften*, 1882.

APNŒA.—Several experiments upon this state have been worked out by Dr. Philip Knoll. His results are as follows :

1. Artificial respiration in rabbits with intact vagi depresses the excitability of the respiratory apparatus.